

Merced/Mariposa
County
Asthma
Coalition



Report to the Community on Asthma

The Merced/Mariposa County Asthma Coalition (MMCAC) is a community-based health organization whose mission is: Controlling asthma through awareness and education. The coalition was formed in 1997, and since then has grown into a diverse body consisting of over 120 volunteer members.

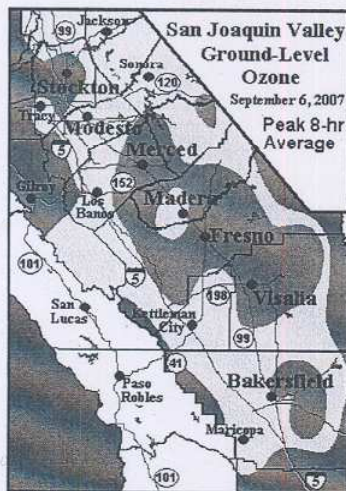
CONTROLLING
ASTHMA
THROUGH
AWARENESS
AND
EDUCATION.

ASTHMA, AN INFLAMMATORY LUNG DISEASE, is one of the most common chronic diseases of children. Common symptoms include recurrent wheezing, coughing, difficulty breathing, and/or tightness of the chest. Asthma attacks can range from mild to life threatening. There is no known cure for asthma, but it can be controlled by following a medical management plan and by reducing exposure to environmental "triggers," such as air pollution, pollen, tobacco smoke, pesticides, dust mites, furry pets, mold and certain chemicals. Asthma control is essential throughout life because, contrary to popular belief, you do not grow out of asthma. Health care providers can access the updated Asthma Guidelines at www.nhlbi.nih.gov

Asthma is a problem that needs to be addressed through policy change. Because the reduction of environmental triggers is an essential component of asthma control and prevention, individuals, communities, and policy makers must work together to find solutions. This report, which includes the latest data and research, will outline the problem of asthma in Merced County, describe some of the work being done to address the problem, and highlight some specific policy recommendations.

Asthma Disparities in the San Joaquin Valley

- Asthma is among the most common chronic childhood diseases, affecting approximately 6.5 million children nationwide including 1.7 million children in California alone. The San Joaquin Valley (Valley), which includes Merced County, has four times the national average for asthma prevalence with one in five children under the age of 18 diagnosed with asthma.^{1,2}
- The burden of asthma weighs heavily on children throughout the Valley. Approximately 9,600 children under the age of 18 living in the Valley visited an emergency room due to asthma-related issues of which 745 were children living in Merced County.³



High Levels of Ozone Pollution Persist in the San Joaquin Valley in Summer

Environmental Triggers of Asthma: Outdoor Air Pollution

Air pollution is the number one environmental concern for the people of the Valley,⁴ and for good reason – the Valley has some of the most polluted air in the country.⁵ Air pollution endangers the health of residents, retards the growth of crops, and threatens the overall economy and quality of life in the region.

Contrary to popular belief, the majority of pollution in the Valley does not come from outside the area. In the Northern part of the Valley, including Merced County, 73% of pollution comes from local sources as opposed to only 27% that is transported from the Bay Area and Sacramento basins.⁶

The geography of the Valley acts as a trap for outdoor air pollution. Surrounding mountains trap airborne pollutants near the Valley floor where people live and breathe. Population growth also contributes to the problem, as more people bring more activities that contribute to poor air quality.

According to the Department of Finance⁷, the Valley has the fastest growing population in California. As such, land-use is rising to the top of the agenda given increasingly limited resources and an economy historically rooted in agriculture. The built environment has a tremendous impact on quantity of and exposure to air pollution. In order to maintain healthy communities, smart growth principles must be the guiding principles of all land-use plans. Smart growth policies include: mixed land uses, walkable communities, preservation of open space, the enhancement of existing communities, and a variety of transportation choices.⁸

Health Impacts of Air Pollution

Pollution impacts residents year-round with ozone (aka “smog”) filling the Valley during the warm summer months, and particulate matter (PM 2.5) being the pollutant of concern in the Fall and Winter seasons. These two contaminants are devastating to lung and heart health and result in serious long term damage to our bodies that can even result in premature death. Ozone, caused from the combination of Nitrous Oxides (NOx) and Volatile Organic Compounds (VOCs) in heat can cause chest pain, shortness of breath, airway inflammation and asthma attacks.⁹

Fine particles, or PM 2.5, are microscopic solids or liquid droplets that can be breathed deep into the lungs and even absorbed into the bloodstream. When people are exposed to high levels of this type of pollution they are more likely to experience: asthma attacks, bronchitis, decreased lung function, heart attacks, and/or premature death.¹⁰

Findings Related to Outdoor Pollution and Health

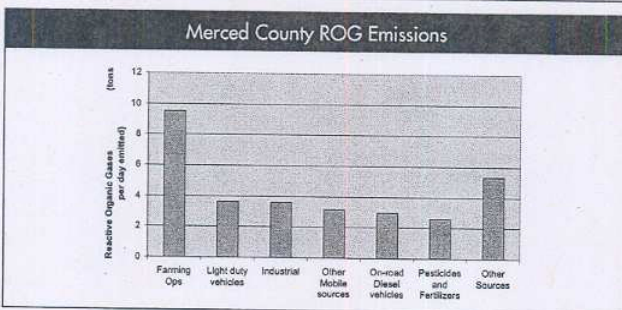
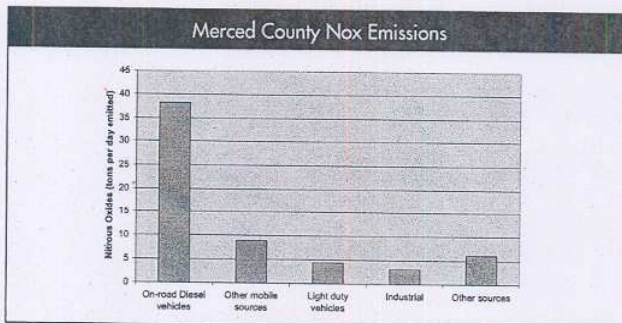
- Residential proximity to high-traffic roads has been associated with asthma hospitalizations, respiratory symptoms, and compromised lung function in children.¹¹
- Children living in communities with higher concentrations of pollutants had lungs that developed and grew more slowly than other children and thus, had a reduced ability of transporting air through their lungs.¹²
- Children living in high ozone communities and who actively participated in sports were more likely to develop asthma than children who did not participate in sports.¹³
- Overall, Valley residents could expect annual benefits of \$3.2 billion if both fine particulate matter and ozone Federal levels were attained.¹⁴

Sources of Pollution

There is a wide array of pollution sources in Merced County. The top three sources of PM 2.5 in Merced

County in 2005 were heavy duty diesel trucks (14.8%), fugitive windblown dust from agricultural land and unpaved roads (13.2%), and farming operations including dust (11.8%).¹⁵

Ozone Precursors: The following two graphs detail the top contributors to ozone pollution in Merced County in 2006.¹⁶



A Big Problem for Merced County

All of this pollution leads to the violation of health-based National and State Ambient Air Quality Standards in Merced County and the San Joaquin Valley Air Basin. For example, from 2000-2005 Merced County violated the State 8-hour ozone standard on 525 days and the National 8-hour ozone standard on 194 days!¹⁷

BECAUSE OF THIS:

- Merced County was ranked 8th in the national list of "People at Risk in 25 Most Ozone-Polluted Counties."¹⁸
- The city of Merced ranked 6th in the national list of "People at Risk in 25 Most Ozone-Polluted Cities".¹⁹ Of the top 6 most ozone-polluted cities in the nation, four (Bakersfield, Visalia-Porterville, Fresno-Madera, and Merced) are located in the San Joaquin Valley.

Keeping Children Healthy: Solutions in Schools

OUTDOOR AIR QUALITY FLAG PROGRAM

In 2004, the Merced/Mariposa County Asthma Coalition launched the Outdoor Air Quality Flag Program at Merced County Office of Education campuses. Since then, this innovative program has spread to 21 of 22

public school districts in the County, private schools, hospitals, health centers, Head Start, and Migrant Head Start sites. In total, over 130 flags are flying on local flag poles that signify daily air pollution levels in the County.

Everyday, each participating school raises a flag that corresponds with the colors of the Air Quality Index. On a 'Good' air quality day the green flag is raised on the flag pole while a yellow flag goes up on a 'Moderate' day. An orange flag means the air is 'Unhealthy for Sensitive Groups' such as children, seniors, and people with heart and/or lung disease. A red flag means the air is 'Unhealthy' for everyone.

Given the frequency of unhealthy air days throughout the year in the Valley it is essential for Merced County residents, especially children, to take measures that reduce their exposure to harmful pollutants. To that end the MMCAC has created (in partnership with other organizations) the Active Indoor Recess (AIR) curriculum that outlines indoor activities students may do on poor outdoor air quality days during recess and PE.

INDOOR AIR QUALITY PROGRAM

Merced County faces many challenges when addressing outdoor air quality issues; however, there are times when indoor air pollutants could be 2-5 times higher, and occasionally 100 times higher than outdoor levels. Poor indoor air quality (IAQ) can cause headaches, fatigue, sinus congestion, coughing, and sneezing; it can also promote the spread of airborne infectious diseases. Indoor air pollutants can be particularly harmful to students with allergies or asthma.²⁰

The MMCAC collected data from 106 teachers through a "Teacher's Classroom Checklist" tool. The following data concludes there is more work to do in creating healthy classrooms and better IAQ in schools.

- 40% of participating teachers reported they did not know how their Heating, Ventilation, and Air Conditioning System worked or that they needed follow-up to ensure the unit's proper function.
- 21% of participating teachers reported there were water stains on their classroom ceilings or evidence of leaks or moisture.
- 24% of participating teachers reported their rooms were not dusted and swept or vacuumed regularly.
- 36% of participating teachers were unsure whether the cleaning products in their rooms were district approved or not.

The Merced/Mariposa County Asthma Coalition has partnered with four Merced County schools to evaluate campuses, educate teachers, and implement strategies

and policies that would improve indoor air quality in classrooms. By applying the EPA's Indoor Air Quality Tools for Schools program to existing policies and procedures, schools identify no-cost / low-cost solutions that promote an "asthma-friendly" classroom free of indoor environmental triggers. Some of these solutions may include maintaining the continual and uninterrupted exchange of air through Heating, Ventilation, and Air Conditioning systems, removal of scented products in School District classrooms (candles, air fresheners, perfumes, etc.), and the purchase and use of "Environmentally-Preferred Products" in custodial practices that emit the lowest amount of odor and Volatile Organic Compounds.

POLICY RECOMMENDATIONS

Preventing people, especially children, from exposure to environmental asthma triggers, particularly indoor and outdoor air pollution, and reducing the amount of pollution being emitted into the ambient air are both critical in the reduction of the asthma burden in Merced County. Therefore, the Merced/Mariposa County Asthma Coalition proposes the following policy recommendations:

- Support expedient regional attainment of the 8-hour ozone and PM 2.5 State and National Ambient Air Quality Standards.
- Adopt standards in land use plans that incorporate smart growth principles and reject land uses that attract/emit high levels of pollutants, particularly diesel emissions, in order to protect the health of Merced County residents and downwind Valley communities.
- Adopt a uniform policy (ex. AIR) in all Merced County School Districts outlining appropriate indoor activities for unhealthy air days over Air Quality Index 100 as a component of school procedures and guidelines.
- Implement a comprehensive and effective Indoor Air Quality Management Plan in Merced County School Districts with set policies and procedures.

References

1. CDC National Center for Health Statistics (NCHS). National Health Interview Survey (NHIS). U.S. Lifetime Asthma Prevalence Percents by Age. 2005; Available at: <http://www.cdc.gov/nchs/nhis.htm>.
2. California Health Interview Survey (CHIS). Lifetime Asthma Prevalence. 2007; Available at: <http://www.chis.ucla.edu/>.
3. California Office of Statewide Health Planning and Development (OSHPD). Patient Emergency Department Databases, 2006.
4. Baldassare, M., Bonner, D., Paluch, J. and Petek, S. PPIC Statewide Survey: Californians and the Environment. July 2007; Available at: <http://www.ppic.org/main/publication.asp/>. Accessed October 1, 2007.
5. American Lung Association. State of the Air Report. 2007; Available at: <http://www.lungaction.org/reports/stateoftheair2007.html>.
6. Fresno Metro Ministry. Air Quality and Environmental Health. 2005; Available at: <http://www.fresnometmin.org/airquality>.
7. State of California, Department of Finance. Population Projections for California and Its Counties 2000-2050. Available at: <http://www.dof.ca.gov/html/DEMOGRAP/ReportsPapers/Projections/P1/P1.php>.
8. Smart Growth Network. Principles of Smart Growth. 1996; Available at: <http://www.smartgrowth.org/about/principles/default.asp>.
9. United States Environmental Protection Agency. Ozone and Your Patients' Health, Training for Health Care Providers. 2007; Available at: <http://www.epa.gov/03healthtraining/aqi.html>.
10. United States Environmental Protection Agency. Particulate Matter. 2007; Available at: <http://www.epa.gov/oar/particlepollution/health.html>.
11. Green, R.S., Smorodinsky, S., Kim, J., McLaughlin, R., and Ostro, B. (January 2004). "Proximity of California Schools to Busy Roads". Environmental Health Perspectives, Volume 112, Number 1.
12. Gauderman, W.J., Avol, E., Gilliland, F., Vora, H., Thomas, D., Berhane K., et al (September 9, 2004). The Effect of Air Pollution on Lung Development from 10 to 18 Years of Age. New England Journal of Medicine, Volume 351, Number 11: 1057-1067.
13. California Environmental Protection Agency, Air Resources Board. The Children's Health Study: Fact Sheet. Available at: <http://www.arb.ca.gov/research/chs/CHSfact.pdf>.
14. Hall, J.V., Brajer, V., Lurmann, F.W. (June 20, 2007). "Measuring the Gains from Improved Air Quality in the San Joaquin Valley". Journal of Environmental Management.
15. California Environmental Protection Agency Air Resources Board. Top 25 Emissions Report. 2006; Available at: <http://www.arb.ca.gov/app/emsinv/top25cat.php>.
16. California Environmental Protection Agency Air Resources Board. Almanac Emission Projection Data. 2007; Available at: http://www.arb.ca.gov/app/emsinv/emseic1_query.php?F_DIV=-4&F_YR=2006&F_SEASON=A&SP=2007&F_AREA=AB&F_AB=SJV&F_DD=Y.
17. California Environmental Protection Agency Air Resources Board. Air Quality Data Statistics, Select 8 Summary. 2006; Available at: http://www.arb.ca.gov/adam/php_files/aqdphp/sc8start.php.
18. American Lung Association. State of the Air Report: People at Risk in 25 Most Ozone-Polluted Counties. 2007; Available at: http://lungaction.org/reports/sota07_table3b.html.
19. American Lung Association. State of the Air Report: People at Risk in 25 Most Ozone-Polluted Cities. 2007; Available at: http://lungaction.org/reports/sota07_cities.html#2b.
20. United States Environmental Protection Agency. Indoor Air Quality, Tools for Schools, IAQ Coordinator's Guide. August 2000; Available at: http://www.epa.gov/iaq/schools/tfs/refguide_toc.html. Accessed June 2005.

CONTACT INFORMATION

For more information about this report card, please contact the Merced/Mariposa County Asthma Coalition at (209) 385-5490 or visit www.mmccac.com

C A F A

Community Action to Fight Asthma

Funded by



The
California
Department of
Public Health

Printed on Recycled Paper.